FLHSMV Data Analysis:

Bicycle Deaths Up Nearly 50% in Florida since COVID

Coastal Counties Hit Hardest

SANTINI · LAW · FIRM

MAY 2026

SantiniResearch.com

Key Findings

What bicycle crash data from FLHSMV tells us about the rise of bike accidents; and which Florida Counties have more bike accidents and fatalities per capita.

Prepared from state and county-level FLHSMV bicycle injury/fatality data compared against state and county population benchmarks from the University of Florida Bureau of Economic and Business Research.

Core study window: 2017-2019 (pre-COVID baseline) vs 2022-2025 (post-COVID core).

Florida's bicycle crash data shows a clear post-COVID shift – in scale, severity, and geography – with fatalities rising nearly 50% statewide

Key Findings:

- Fatalities Are Surging: Florida bicycle deaths have risen nearly 50% since COVID, with injuries up 32% over the same period.
- Crashes Are Getting More Severe: Adjusted for population, fatality rates are rising faster than injury rates – indicating that crashes are not just more frequent, but more dangerous.
- The Pattern Is Geographic – Not Random: The highest per capita injury rates are concentrated in a cluster of coastal, leisure-heavy counties led by Monroe and Pinellas – not simply Florida's largest urban centers.
- The Data Points to E-Bikes: While state crash reports do not yet isolate e-bikes, the timing, geography, and severity trends strongly align with the rapid expansion of electric bicycles across Florida.

Methodology Note: This analysis measures the absolute injury burden per resident, not risk per rider or miles traveled.

> *This is not random - the increase is geographically concentrated and structurally consistent.*

What changed after COVID: The E-Bike Surge

U.S. e-bike sales more than quadrupled between 2019 and 2022, with 2025 imports exceeding 2 million units – a 24% year-over-year jump.

While Florida does not yet publish statewide e-bike sales totals, local infrastructure metrics prove this national shift hit the state hard. When Pinellas County transitioned its municipal bike-share to a fully electric fleet in 2023, ridership more than doubled compared to its pedal-bike era. Concurrently, Forward Pinellas recorded a 60% spike in trail usage starting in 2020, sustaining over 2 million annual users post-COVID. Further south, a Sanibel Island study reported a 92% surge in e-bike traffic between 2024 and 2025.

The conclusion is clear: Florida experienced a massive influx of electric bikes during the exact same window that bicycle casualties spiked. Because current state crash data merges e-bikes with traditional pedal bicycles, the statewide surge in "bicycle" injuries and fatalities must be analyzed through the lens of this e-bike boom.

Recognizing this critical data gap, the Florida Legislature recently intervened. This report arrives just as Florida prepares to collect its first true e-bike crash data – meaning current decisions are being made without a complete picture.

The New Data Framework: Florida's First True E-Bike Crash Tracking System

The 2026 E-Bike Act (formerly Senate Bill 382) mandates Florida's first systematic tracking of e-bike crashes. The law requires the Florida Highway Patrol and all local law enforcement to record granular data on every micromobility crash they investigate – even minor incidents that would not normally trigger a standard long-form crash report.

Officers must now record:

- E-bike classification (Class 1, 2, or 3)
- Operator age and driver's license status
- Standard crash logistics (date and time)

This establishes a strict data pipeline. Local agencies must submit their records to FLHSMV by October 15, 2026, culminating in a statewide analytical report for the Governor and Legislature by October 31. The legislative intent is explicit: build an empirical foundation to regulate e-bikes.

Implication for This Study

This study hypothesizes that a significant portion of Florida's post-COVID bicycle casualty surge is driven directly by e-bikes. Until the new SB 382 data arrives, researchers must rely on indirect indicators – severity trends, geographic patterns, and local usage signals – to isolate the role e-bikes play in statewide crash outcomes.

> *Florida is effectively operating without clear e-bike crash data - even as usage and injuries rise in parallel.*

Bicycle Deaths and Injuries Surge Across Florida

Although state data does not yet isolate e-bikes, Florida's aggregate bicycle crash records show a clear break from historical trends. Injuries were relatively stable during the 2017–2019 pre-COVID baseline, but rose sharply in the 2022–2025 period, with fatalities increasing even more dramatically. This pattern points to a structural shift in exposure, device mix, rider behavior, or a combination of these factors.

Figure 1. Statewide bicycle injury and fatality rates (per 100,000 residents), 2017–2025

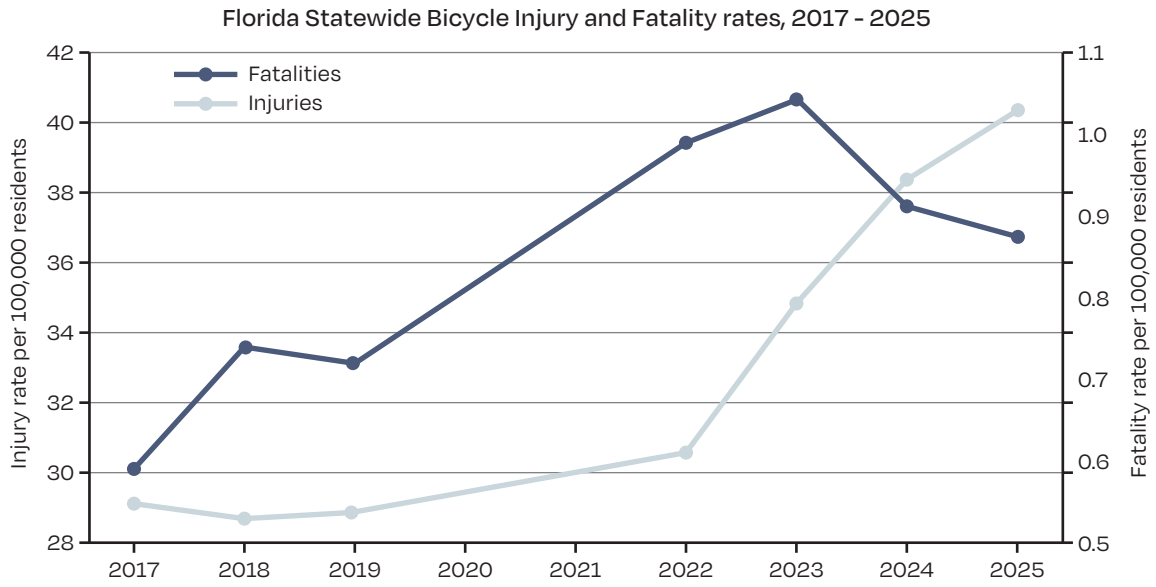


Table 1. Statewide Injury and Fatality Comparison (Pre- vs Post-COVID)

Metric	2017-2019 avg	2022-2025 avg	Change
Statewide injuries per year	6,226.7	8,233.3	+32.2%
Injury rate per 100,000	29.67	36.00	+21.4%
Statewide fatalities per year	147.7	216.5	+46.6%
Fatality rate per 100,000	0.703	0.949	+35.1%
Fatal share of injuries	2.37%	2.63%	+0.26 pts

Interpretation: Injuries increased faster than population, while fatality rates rose even more sharply – indicating not just more crashes, but more severe ones.

Florida's post-COVID era marks a substantial shift in both the frequency and severity of bicycle crashes. Compared to the 2017–2019 baseline, average annual injuries jumped 32% (to 8,233) in 2022–2025. Fatalities spiked even more, rising from 148 to 217 per year.

Table 2. What Bicycle Data Includes - and What It Misses

What the bicycle bucket clearly includes	What it clearly does not include
• Human-powered bicycles and pedalcycles. • Riders coded as 'Bicyclist' (code 3) or 'Other Cyclist' (code 4). [S1][S2] • In practice, at least some legal e-bikes are likely counted here because local Florida enforcement guidance treats e-bikes as bicycles on roads and trails. [S8]	• Scooters or similar devices. FLHSMV's Crash Facts glossary explicitly excludes them from the bicycle definition. [S1] • Occupants of a non-motor vehicle transportation device other than a bicycle; those fall under 'Other Non-Motorist.' [S1][S2]

FLHSMV's 'bicycle' category is not a catch-all for broad micromobility devices. Official crash materials separately define 'Other Non-Motorist' and explicitly exclude scooters and similar devices from the 'Bicycle' definition.

This distinction is critical: the post-COVID casualty surge cannot be dismissed as a generic influx of e-scooters. It strictly reflects an increase in bicycle and e-bike incidents. To further isolate this trend, the geographical distribution of these crashes provides the next strongest signal.

Geographic Distribution: The Coastal Concentration

The surge in post-COVID bicycle casualties is not evenly distributed statewide. Instead, it is heavily concentrated in a distinct coastal cluster led by Monroe and Pinellas counties, followed by Martin, Collier, Sarasota, Broward, Brevard, Bay, Volusia, and Palm Beach.

Crucially, Florida's largest counties do not automatically post the highest rates once adjusted for population. This indicates the post-COVID spike is not simply a byproduct of raw population growth or generic urban density.

The data strongly suggests a specific exposure model: e-bikes layering onto pre-existing bicycle traffic in counties with robust trail networks, high visitor volumes, older demographics, and coastal recreation economies. While current FLHSMV data cannot definitively prove e-bikes caused the majority of this increase, the alignment of geography, timing, and local infrastructure reports positions the e-bike boom as the most plausible leading driver of the casualty surge.

> *The pattern points away from density and toward exposure - where and how people are riding has changed*

Figure 2. Top counties by post-COVID injury rate, using the 2022-2025 average.

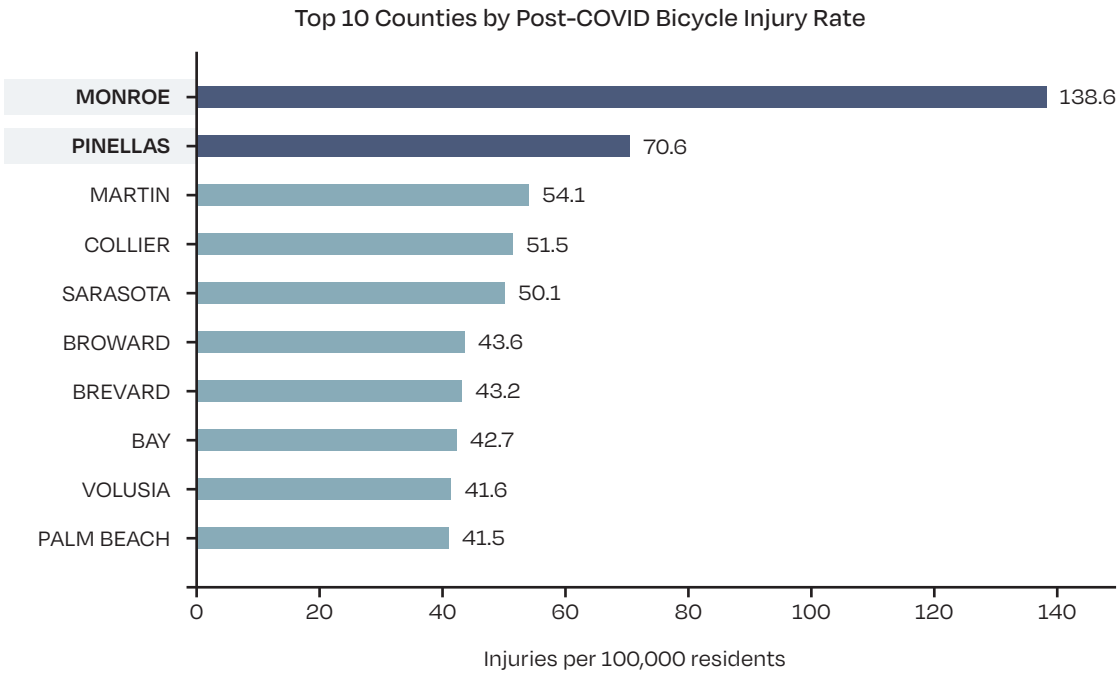


Table 3. Highest Per Capita Counties: Post-COVID Injury & Fatality Rates Per 100,000 People

County	Post Injury Rate	Change vs 2017-2019	Post Fatal Rate
MONROE	**138.59**	**56.87**	**3.57**
PINELLAS	**70.56**	**15.00**	**1.37**
MARTIN	54.08	10.39	1.22
COLLIER	51.55	18.57	1.30
SARASOTA	50.12	9.68	1.33
BROWARD	43.59	7.22	0.67
BREVARD	43.17	9.40	1.04
BAY	42.70	15.48	1.56
VOLUSIA	41.57	3.29	1.07
PALM BEACH	41.51	12.53	0.81

High Injury-Rate Counties: Where Scale Meets Risk

Among Florida's highest injury-rate counties, a smaller group stands out for combining both high crash volume and elevated fatality rates.

Pinellas County is the clearest large-market signal – pairing substantial injury volume with a fatality rate (1.37 per 100,000) that exceeds many peer counties. Collier, Sarasota, and Bay Counties also show elevated fatality rates relative to their size, extending patterns beyond the highest injury-rate counties.

This pattern shows the surge is not confined to a handful of hotspots – it appears across both high-density and high-exposure environments. That suggests a structural shift, not an isolated anomaly, and is unlikely to reverse without targeted intervention.

Beyond Raw Population

Raw crash totals and per-capita risk tell fundamentally different stories. Florida's largest counties dominate total incidents, but when adjusted for population, Monroe and Pinellas separate clearly from the field - with a second tier of mid-sized coastal counties also emerging as high-risk environments.

The gap becomes clearer when volume and rate are viewed together. High-volume counties do not consistently produce the highest per-capita injury rates, indicating that exposure – not just scale – is driving outcomes. Demographically, these counties skew older and are less youth-heavy than the rest of Florida, aligning with an exposure model dominated by leisure riding, amenity-rich environments, robust trail networks, and mixed visitor/resident traffic. These are precisely the conditions where e-bikes would most plausibly expand total riding volume and alter crash speed dynamics.

Figure 3. High raw volume and high per-capita burden are not the same thing.

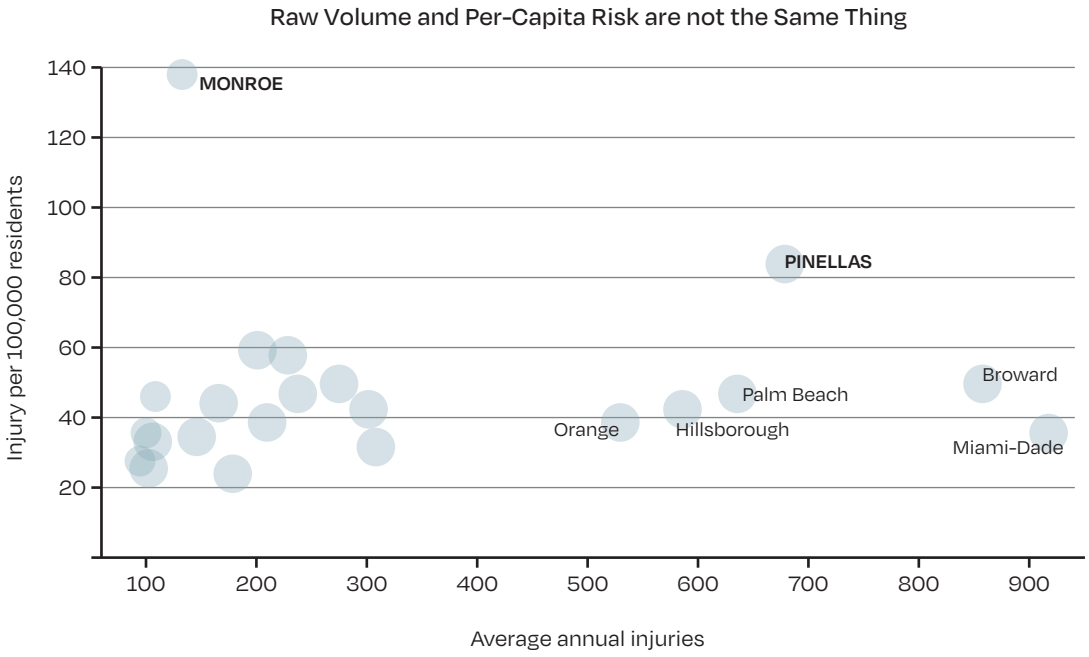


Table 4. Top 10 counties by post-COVID injury rate

County	Avg Annual Injuries	Post Rate	Change vs pre	Age 65+ Share of the Population
MONROE	**116.8**	**138.6**	**+56.9**	**25.9%**
PINELLAS	**680.8**	**70.6**	**+15.0**	**27.6%**
MARTIN	88.8	54.1	+10.4	32.9%
COLLIER	207.5	51.5	+18.6	31.2%
SARASOTA	237.0	50.1	+9.7	36.9%
BROWARD	863.0	43.6	+7.2	19.0%
BREVARD	280.5	43.2	+9.4	26.2%
BAY	82.5	42.7	+15.5	18.8%
VOLUSIA	245.8	41.6	+3.3	26.5%
PALM BEACH	639.0	41.5	+12.5	25.4%

Every county in Table 4 touches the coast. The pattern points away from a purely urban-density story.

Severity Trends

Beyond Volume: Increasing Severity and Fatalities

Tracking fatalities is crucial because it indicates whether bicycle crashes are merely becoming more frequent, or if they are becoming more severe. Across the core study window, Florida's statewide fatality rate rose even faster than the injury rate. While the severity trend is not perfectly linear – the fatal share of total injuries peaked in 2022 and 2023 before easing slightly – the post-COVID baseline remains significantly more lethal than the pre-COVID baseline.

Among counties with meaningful bicycle volume, Monroe again stands apart. Pinellas also remains prominent, which matters because it is large enough that its results cannot be dismissed as small-county noise. Collier, Lee, Hillsborough, and Palm Beach also show elevated or sharply rising fatality rates relative to the pre-COVID baseline, suggesting that some parts of the state are experiencing not just more bicycle injuries, but more lethal ones.

Table 5. Fatality-rate leaders among higher-volume counties

County	Post Fatality Rate	Avg Annual Fatalities	Fatal Share
MONROE	3.57	3.00	2.95%
MANATEE	1.58	7.00	4.21%
MARION	1.44	6.00	5.63%
PINELLAS	1.37	13.25	1.97%
OSCEOLA	1.33	6.00	5.93%
SARASOTA	1.33	6.25	2.75%
COLLIER	1.30	5.25	2.57%
PASCO	1.29	8.00	3.74%
ESCAMBIA	1.20	4.00	3.71%
HILLSBOROUGH	1.15	17.75	3.10%

Fatality patterns sharpen the thesis. Some small counties can appear extreme on fatality rate because a few deaths create a large per-capita number. For that reason, the most useful fatality chart below applies a simple screen: counties must average at least three fatalities per year in the post-COVID period to appear.

Figure 4. Top counties by post-COVID fatality rate among counties with at least three average annual fatalities.

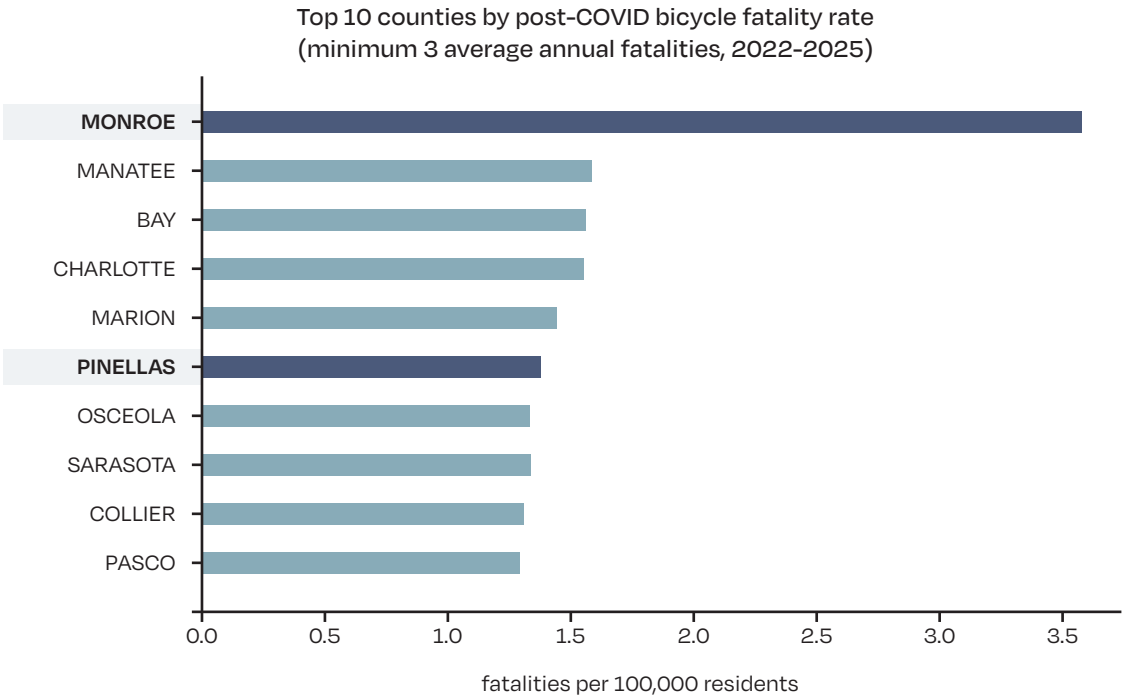


Table 6. Top 10 counties by meaningful fatality rate

County	Post Fatal Rate	Change vs 2017-2019	Post Injury Rate	Avg Annual Fatalities
MONROE	**3.57**	**0.68**	**138.59**	**3.00**
MANATEE	1.58	0.46	39.04	7.00
BAY	1.56	0.22	42.70	3.00
CHARLOTTE	1.55	0.63	33.62	3.25
MARION	1.44	0.62	25.88	6.00
PINELLAS	**1.37**	**0.57**	**70.56**	**13.25**
OSCEOLA	1.33	0.33	24.14	6.00
SARASOTA	1.33	0.16	50.12	6.25
COLLIER	1.30	0.85	51.55	5.25
PASCO	1.29	-0.18	35.14	8.00

Local Spotlights

Monroe County:
Constrained Geography and Heavy Visitor Exposure

Monroe posts the dataset's highest post-COVID injury rate and the highest fatality rate among counties meeting the report's meaningful-volume screen. This injury rate is approximately 4.2 times higher than Miami-Dade's. While resident-based denominators can mathematically overstate the burden in tourism-heavy regions, Monroe's underlying structural factors strongly support an e-bike-driven exposure model:

- **Elevated Baseline Risk:** The Florida Department of Health notes Monroe has a disproportionately high rate of bicycle commuters and ranks among the state's highest for bicycle fatalities.
- **Path Infrastructure:** County transportation heavily relies on the U.S. 1 corridor and the continuous Florida Keys Overseas Heritage Trail where state parks explicitly permit e-bike usage.
- **Visitor Volume:** High visitor traffic, characterized by long average stays (6 nights) and high hotel occupancy (61% in 2023), creates massive non-resident cycling exposure.
- **Official Intervention:** Local authorities are actively responding to this shift, evidenced by the health department's recent implementation of a distinct "E-Bike and Motorized Scooters" safety section enforcing a 15 mph path limit.

Local Spotlights

Pinellas County:
The High-Volume Coastal Model

Pinellas provides the state's strongest large-county signal, combining extreme crash volume with severe per-capita rates. In the post-COVID window, Pinellas averaged 680.8 injuries annually, driving a resident-adjusted rate of 70.6 per 100,000-roughly 2.1 times the rate of Miami-Dade. Lethality also surged, with average annual fatalities rising from 7.7 to 13.25 (a 1.37 rate).

This localized casualty spike correlates directly with documented, rapid e-bike expansion:

- **Saturated Infrastructure:** Automated trail counters indicate a massive active-transportation environment, and Pinellas Trail rules explicitly classify legal e-bikes as traditional bicycles.
- **Ridership Spikes:** Following St. Petersburg's transition to an all-electric municipal bike-share fleet in 2023, system ridership more than doubled compared to its final pedal-bike year.

Ultimately, Pinellas exemplifies a structural exposure shift: high baseline bicycle demand, expansive trail networks intersecting major roadways, and a massive influx of e-bikes. If Florida's broad "bicycle" casualty category is absorbing the legal e-bike surge, Pinellas County serves as the state's primary leading indicator.

Why This Matters Now

Florida's post-COVID bicycle crash surge is not random – it is geographically concentrated, structurally consistent, and accelerating in severity.

The strongest signals are not coming from the state's largest urban centers, but from a distinct cluster of coastal counties led by Monroe and Pinellas – areas where e-bike adoption, trail infrastructure, and rider exposure have expanded rapidly.

At the same time, Florida is operating without clear e-bike-specific crash data. That gap is only now beginning to close, as the state prepares to implement its first formal micromobility crash tracking system following the recent passage of SB 382.

Until that data arrives, policymakers, local governments, and the public are making decisions in a partial-data environment. Compared with the pre-COVID baseline, injuries are higher and fatalities increased even faster.

If current trends continue, Florida is not just seeing more bicycle crashes – it is seeing more severe and more lethal ones, concentrated in the exact regions where riding patterns have shifted the most.

Appendix A: Methodology & Data Processing

Data Sources & Study Period

This analysis relies on Florida Highway Safety and Motor Vehicles (FLHSMV) crash reporting records, aggregated to the county-year level. The study contrasts a pre-COVID baseline (2017–2019) against a post-COVID core period (2022–2025). Years 2020 and 2021 were excluded to account for pandemic-related traffic disruptions, and 2026 data was excluded as it represents an incomplete year. Official county population benchmarks were sourced from the University of Florida Bureau of Economic and Business Research (BEBR).

Definitions & Classifications

Florida crash data categorizes bicyclists under "non-motorist pedalcycles". This broad classification captures both traditional bicycles and statutory electric bicycles, without consistently differentiating between the two. Alternative micromobility devices, such as e-scooters, fall under separate categories and are explicitly excluded from these bicycle totals.

Rate Calculations & Population Modeling

Injury and fatality rates are calculated per 100,000 residents. Statewide rates and the main county tables use annual population estimates derived from BEBR benchmark population tables. For 2017–2019, annual population estimates were modeled from the surrounding BEBR benchmark years; for 2022–2025, annual estimates were modeled from the 2020 and 2025 BEBR benchmark values.

Some supplemental county-level charts may use 2020 population as a fixed baseline for the 2017–2019 period to stabilize small-county comparisons and simplify visual presentation. These denominator choices can create minor differences in rate values, but they do not affect the core findings: post-COVID injury and fatality rates are substantially higher, and the same major high-burden coastal counties remain leading outliers.

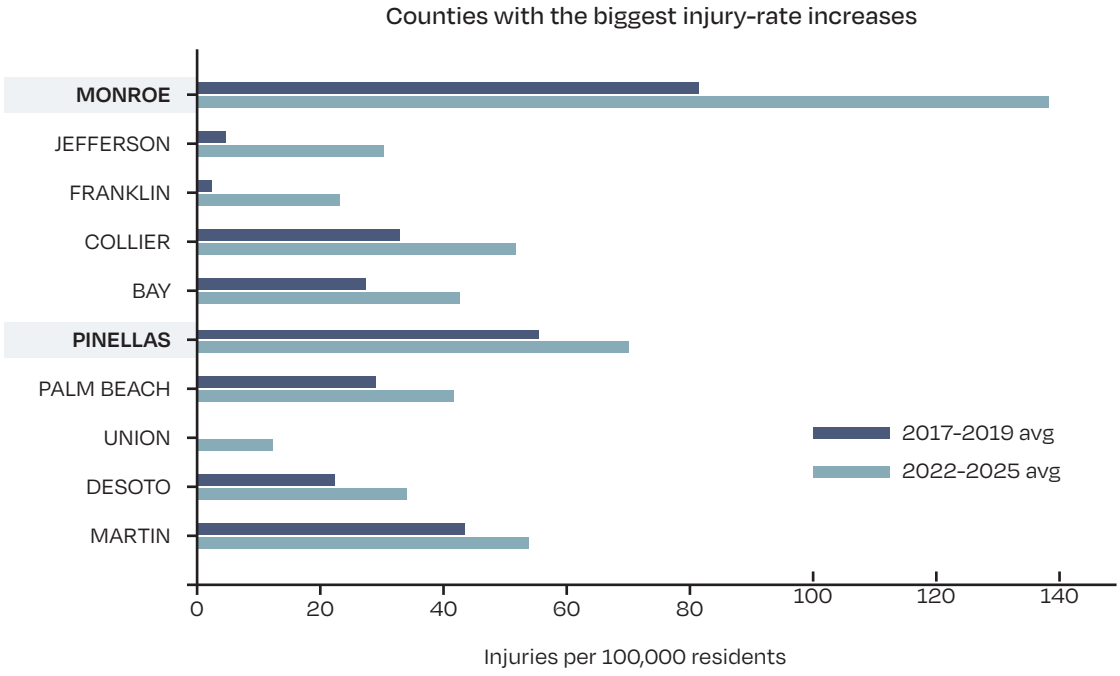
Unless otherwise noted, change values reported in the main tables represent the 2022–2025 average rate minus the 2017–2019 average rate. Percentage changes are calculated from underlying unrounded values and then rounded for display.

Appendix B: Limitations

- Exposure Metrics: This analysis measures the injury burden relative to the total resident population, rather than actual cycling exposure (e.g., risk per active cyclist or per mile traveled).
- Device Blending: Because current state reporting systems do not reliably isolate e-bikes from traditional bicycles, the post-COVID trendlines reflect a combined casualty mix.
- The Tourism Skew: Resident-based denominators inherently overstate per-capita injury rates in heavily visited coastal and amenity-rich counties, as non-resident riders contribute to raw crash volumes but are excluded from the population baseline.
- Interpolation Constraints: Utilizing linear interpolation for intermediate population estimates may fail to capture acute, short-term demographic shifts.

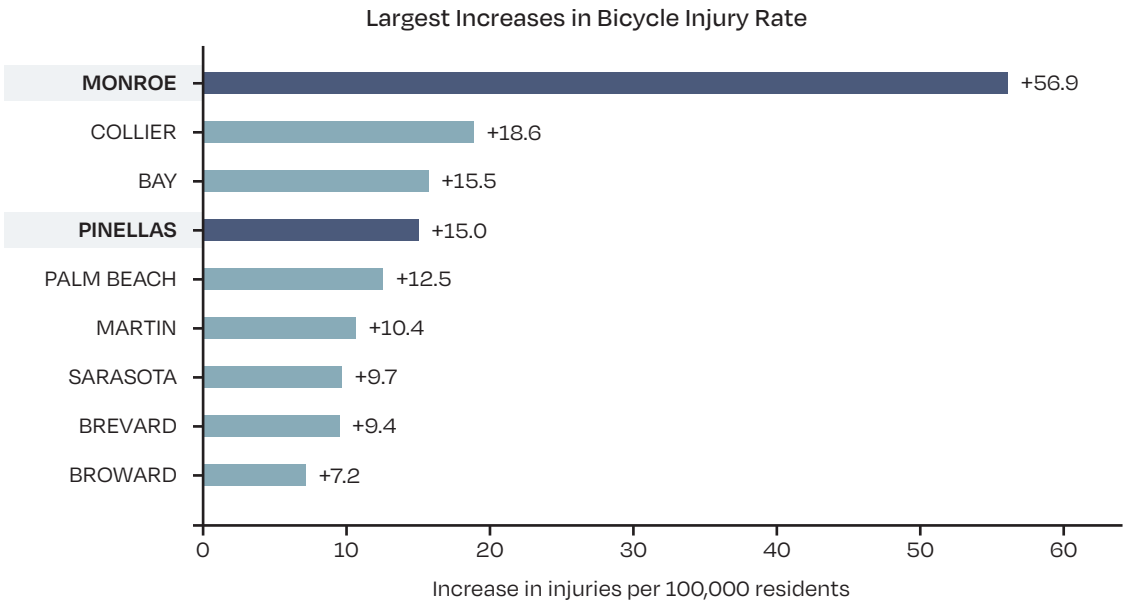
Appendix C: Supplemental Data

Counties with the largest increase in injury rate from the baseline to the post-COVID period.



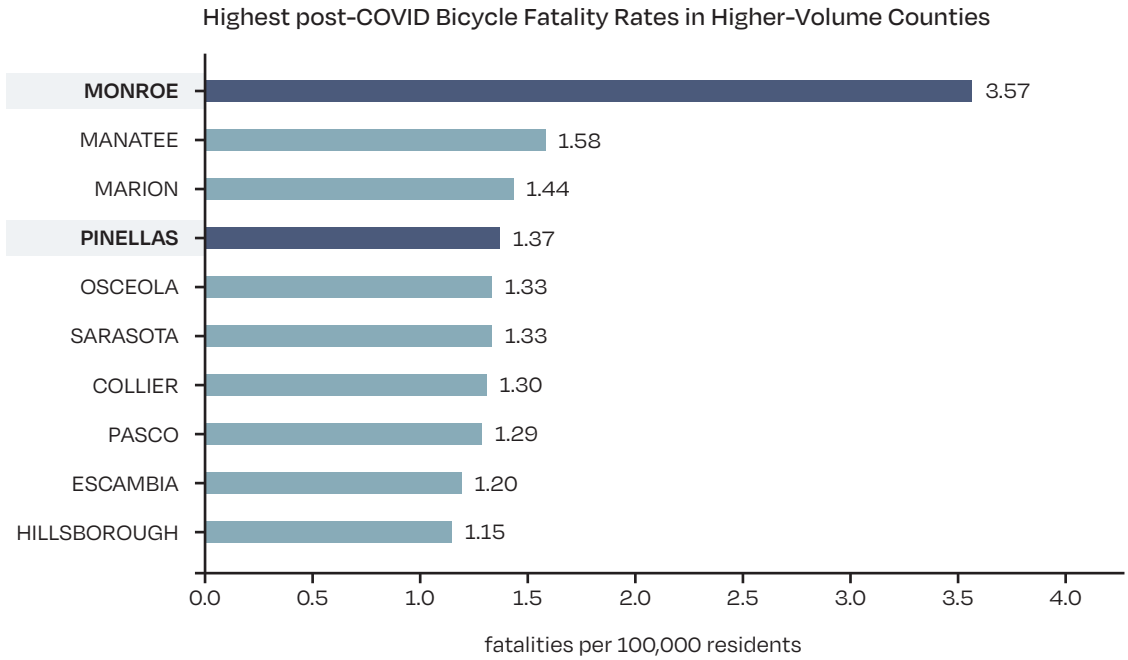
There was one (1) recorded bicycle crash in Union County between 2017-2019 and it was designated as fatal by the FLHSMV Crash Dashboard.

Highest post-COVID bicycle injury rates by county.



Note: Jefferson, Franklin, Union, and DeSoto Counties are excluded from this supplemental chart because their smaller populations and low bicycle-injury counts can produce unstable rate-change rankings. This chart focuses on higher-volume/high-rate counties for comparison.

Highest post-COVID fatality rates among counties with at least 100 bicycle injuries per year.



Appendix D: Source References

- **[S1]** Florida Highway Safety and Motor Vehicles, Florida Traffic Crash Facts Annual Report 2023.
- **[S2]** Florida Highway Safety and Motor Vehicles, Florida Traffic Crash Report form 90010S.
- **[S3]** Florida Department of Health in Monroe County, "Bike Safety."
- **[S4]** Florida Keys Transportation Coordination Committee, Resolution 001-2022.
- **[S5]** Rockport Analytics, Florida Keys Visitor Profile Study Results 2023.
- **[S6]** Florida State Parks, Florida Keys Overseas Heritage Trail experiences and amenities page.
- **[S7]** Forward Pinellas, Trail Count Program.
- **[S8]** City of Dunedin / Pinellas County Sheriff's Office, "E-Bikes on the Pinellas Trail: What You Need to Know."
- **[S9]** WUSF, "Pinellas bicyclists running red lights, getting hit by cars."
- **[S10]** Tampa Bay Times reporting on e-bike crash concerns in Tampa Bay, February 2026.

Frank Santini is a personal injury attorney and public safety researcher whose work focuses on accident causation, roadway safety, and emerging transportation risks, as well as toxic chemicals, dangerous products, and medical errors. He is the founder of Santini Personal Injury & Car Accident Law, a firm representing injury victims across Florida, Pennsylvania, and New Jersey in matters involving motor vehicle crashes, commercial trucking collisions, medical malpractice, and other catastrophic injuries. He has earned AV Preeminent distinction for legal ability and ethical standards and was recognized by Super Lawyers as a Rising Star.

Santini is a graduate of Muhlenberg College in Allentown, Pennsylvania, and Stetson University College of Law in Gulfport, Florida, where he graduated first in his class. In addition to litigation, he conducts independent safety research through Santini Research, examining topics such as tractor trailer accidents, e-bike crash risks, and other emerging public safety issues affecting the communities he serves.

His work has been published by the American Bar Association's Law Practice Management Journal. He has appeared in the Tampa Bay Business Journal, Daily Business Review, and Business Observer. He has spoken for such organizations as Florida's Healthcare Engineering Association and Florida's Barclay Group.

Santini is involved with various community and charitable initiatives that support local organizations and families in need. His work bridges legal analysis, public safety research, and community engagement to better understand and communicate the causes of preventable injuries.

Santini lives in Riverview, Florida with his wife and three children.

SANTINI · LAW · FIRM

TAMPA OFFICE
9270 Bay Plaza Blvd Suite 618
Tampa, FL 33619

RIVERVIEW OFFICE
7269 Bucks Ford Dr. Riverview,
FL 33578

813-859-6858

SantiniResearch.com